



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,600	12/21/2000	Hirokazu Iwata	172A 3054	1002

7590 04/23/2003
KODA & ANDROLIA
2029 CENTURY PARK EAST
SUITE 3850
LOS ANGELES, CA 90067-3024

EXAMINER

GONZALEZ, JULIO C

ART UNIT PAPER NUMBER

2834

DATE MAILED: 04/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/746,600

Applicant(s)

IWATA, HIROKAZU

Examiner

Julio C. Gonzalez

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6 and 8 is/are rejected.
- 7) ☒ Claim(s) 2,7 and 9-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 01 November 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita et al in view of Novikov.

Tomita et al discloses a piezoelectric device having a piezoelectric plate 1 with a main electrode 2a, an electrode 2c surrounding the edge of the main electrode with a gap in between (see figure 9a). Moreover, a trapped mode and anti-symmetric mode been used for the device is disclosed (see abstract & column 13, lines 1-4).

However Tomika et al does not disclose that the electrodes are made of different materials.

On the other hand, Novikov discloses for the purpose of improving the accuracy of measurement of amplitude frequency over a wide range of frequency spectrum that the electrodes are made of different materials and have different densities (see abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design a piezoelectric device having a main electrode as disclosed by Tomita et al and to modify the invention using different materials for the purpose of improving the accuracy of measurement of amplitude frequency over a wide range of frequency spectrum as disclosed by Novikov.

3. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita et al and Novikov as applied to claims 1 and 3 above, and further in view of Wajima.

The combined piezoelectric resonator discloses all of the limitations above. However, the combined piezoelectric resonator does not disclose that the electrodes have an elliptical configuration.

On the other hand, Wajima discloses for the purpose of suppress undesired spurious vibrations, electrodes with an elliptical configuration (see figure 12A).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined piezoelectric resonator as disclosed above and to modify the invention by using an elliptical configuration for the electrode discloses for the purpose of suppress undesired spurious vibrations as disclosed by Wajima.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita et al in view of Dydyk and Wajima.

Tomita et al discloses a piezoelectric device having a piezoelectric plate 1 with a main electrode 2a, an electrode 2c surrounding the edge of the main electrode with a gap in between (see figure 9a). Moreover, a trapped mode and anti-symmetric mode been used for the device is disclosed (see abstract & column 13, lines 1-4).

However Tomika et al does not disclose that the main surface has a recess corresponding to a thin portion.

On the other hand, Dydyk discloses for the purpose of providing a robust resonator having high quality factor and low insertion loss that a piezoelectric plate can have a recess to thereby form a thin portion (see figure 1).

However, neither Tomita et al nor Dydyk disclose that the electrodes have an elliptical configuration.

On the other hand, Wajima discloses for the purpose of suppress undesired spurious vibrations, electrodes with an elliptical configuration (see figure 12A).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design a piezoelectric device having a main electrode as

disclosed by Tomita et al and to modify the invention by making a recess to a piezoelectric device for the purpose of providing a robust resonator having high quality factor and low insertion loss as disclosed by Dydyk and to use an elliptical configuration for the electrode for the purpose of suppressing undesired spurious vibrations as disclosed by Wajima.

Allowable Subject Matter

5. Claims 2, 7 and 9-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed November 1, 2002 have been fully considered but they are not persuasive.

Claim 1 discloses a piezoelectric device having a main electrode and a second electrode surrounding the main electrode and a gap in between the main electrode and second electrode. Tomita et al discloses such limitations in figure 9B, such as a main electrode 2a, second electrode 2c, which are separated by a gap.

7. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Tomita et al and Novikov deal directly with piezoelectric resonators using a plurality of electrodes, which are directly related in the same field of expertise.

8. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., providing a piezoelectric resonator whose capacitance ratio is minimal by way of displacement distribution of the thickness shear vibration mode) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Application/Control Number: 09/746,600
Art Unit: 2834

Page 8


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio C. Gonzalez whose telephone number is (703) 305-1563. The examiner can normally be reached on M-F (8AM-5PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Jcg

April 9, 2003



DANGLE
PRIMARY EXAMINER